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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,256	04/15/2004	Gabriel L. Suciu	EH-10674 (04-184)	8118

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EXAMINER

WIEHE, NATHANIEL EDWARD

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/825,256		SUCIU ET AL.	
	Examiner		Art Unit	
	Nathan Wiehe		3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5-12 is/are rejected.
- 7) ☒ Claim(s) 3, 4 and 19-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of apparatus in the reply filed on 14 November 2005 is acknowledged. The traversal is on the ground(s) that there is not undue burden on the examiner. This is not found persuasive because. This is not found persuasive because the apparatus and method hold separate status within the art. Evidence of this is that their fields of search are not coextensive. See MPEP 808.02(B).

The requirement is still deemed proper and is therefore made FINAL.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 14 November with respect to claims 2 and 612 have been fully considered but they are not persuasive. The retainers of Hackstie are used to prevent axial movement of a dummy disk. Since the disk and retainer are in a zero clearance arrangement there would inherently be a precompression force applied and maintained.

In regard to claims 8 and 10, the rejection of these claims is proper since the appropriate design choice test was conducted as set forth in *Ex parte Clapp*, 227 USPQ 972, 973.

Applicant's arguments, see page 8, lines 11-14, filed 14 November 2005, with respect to claim 3 have been fully considered and are persuasive. The rejection of claim 3 has been withdrawn.

Applicant's arguments, see page 9, lines 6-14, with respect to the rejection of claim 5 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,6,7,9,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombard (CA 534,694) in view of Hackstie (5,161,951). Lombard discloses a retainer segment, (27,28) including a first surface engaging a rotor stack (13A,13a-y,13B) and a second surface engaging the central shaft (10) that transmits a precompression force to the rotor stack in a turbine engine. Further, Lombard's retainer is located proximate to the forward end of the compressor stack, which lacks off-center tie rods. Lombard does not disclose the use of a multi-segmented retainer located in a rebate on the shaft. Hackstie teaches the use of a segmented retainer (24) and collar (30) in a full annulus rebate (16) on the shaft (8) to retain a disk (9) in a gas turbine. Hackstie's collar (30) secures the retainer (24) against radial displacement. Also, Hackstie's rebate (16) has a forward surface (27), essentially radial and engaging retainer's second surface, an aft surface (25), and a base surface (not referenced). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify the retainer of Lombard by including a shaft rebate, collar, and retainer segments as taught by Hackstie in order to better secure the rotor stack on the shaft.

In regard to claim 8, Hackstie does not address the relative angle of the rebate's base surface. However, applicant has not disclosed that having a rearwardly divergent base surface solves any stated problem or is for any particular purpose. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the retainer of Lombard such that the rebate's base surface is essentially rearwardly divergent at a half angle in excess of 50 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the modified retainer of Lombard.

In regard to claim 10, the modified invention of Lombard does not expressly disclose the precompression force transmitted to the rotor stack. However, applicant has stated that, "Advantageous force will depend upon the size of the rotor stack" (paragraph [0032]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the retainer of Lombard to adjust the precompression force based on the specific size of the rotor stack because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the modified retainer of Lombard.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lombard in view of Hackstie as applied to claim 1 above, and further in view of an engineering expedient. The modified retainer of Lombard discloses the invention substantially as claimed except for the use of only two retainer segments. It is common practice in

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the art of gas turbines to use whatever number of retainers necessary to secure a disk or rotor stack based on the size and geometric configuration of the disk or rotor stack. It is further noted that a two piece retainer would minimize installation time. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the turbine of Lombard by including only two retainer segments to facilitate installation and to allow for sufficient retention as an engineering expedient.

Allowable Subject Matter

Claims 3,5 and 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-8648. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nathan Wiehe
Examiner
Art Unit 3745



EDWARD K. LOOK
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12/5/05